

REPLY UNDER 37 CFR 1.116
EXPEDITED PROCEDURE
TECHNOLOGY CENTER 1792

Remarks

Claims 12 and 14-29 are pending in the application. All claims stand rejected under §103 as being unpatentable over U.S. Patent No. 5,302,547 to Wojnarowski. In addition, several objections under §112 have been raised. For the reasons set forth below, reconsideration of the amended application is respectfully requested.

1. The §112 Objections.

Claims 27 and 29 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 27 has been amended to recite that the intermediate, sacrificial layer is made of a compound of the formula C_xF_y , instead of being a “Teflon-like” material. Claim 29 has been amended to recite a group of dielectric layers that are specifically disclosed in the application. These amendments are believed to obviate the §112 objections.

2. The §103 Rejections.

Applicants' invention relates to a method of removing a layer in a multi-layer system when that layer cannot (or should not) be removed by ablating the layer directly. In applicants' method the problem is solved by providing a “sacrificial” layer adjacent the “target” layer that is desired to be removed. The sacrificial layer must be a layer that is suitable for direct ablation, and when the sacrificial layer is ablated, the adjacent layer is also removed without ablating the “target” layer directly.

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In the pending (Final) Office Action, claim 12 stands rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,302,547 to Wojnarowski et al, in view of U.S. Patent Publication No. 2002/0121692 to Lee et al. According to the Office, Wojnarowski makes applicants' invention obvious by teaching a method of depositing an intermediate layer and a non-conductive layer on a substrate, and then removing the intermediate layer and a corresponding portion of the non-conductive layer "by applying laser energy to the intermediate layer."

Applicants respectfully submit that, contrary to the statements in the Office Action, Wojnarowski does not teach removing the non-conductive layer by applying laser energy to the intermediate layer. Instead, Wojnarowski teaches removing the non-conductive layer by ablating that layer directly. This is substantially and patentably distinct from applicants' method of removing a non-conductive layer by ablating a sacrificial layer without ablating the non-conductive layer.

The particulars of the Wojnarowski reference are disclosed at col. 7, lines 60-62, where Wojnarowski discloses that in his method both layers are removed by ablating them directly. Specifically, Wojnarowski's top layer is removed "at the same time and in the same area during the laser ablation of the second dielectric layer." Wojnarowski at col. 7, lines 60-62. Wojnarowski does not disclose or suggest removing the top layer by ablating the dielectric layer below it without ablating the top layer.

In contrast, applicants' disclose and claim a method of removing a layer that is not suitable (for whatever reason) for direct ablation. That layer, the "target" layer, may be a non-

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conductive layer or a metallic layer. In either case, with applicants' invention a sacrificial layer is provided adjacent the "target" layer, and then the sacrificial layer is ablated away. This causes the "target" (non-conductive or metallic layer) to also be removed.

To clarify that applicants do not claim ablating both layers directly, claim 12 has been amended to require applying an amount of energy ineffective to ablate the target (non-conductive or metallic) layer directly, but effective to ablate the intermediate, sacrificial layer. As further recited by the claim, this selective ablation removes the intermediate, sacrificial layer, and causes a corresponding portion of the non-conductive or metallic layer to be removed.

In view of the above it can be seen that the cited prior art does not teach or suggest applicants' invention of removing a layer that is not suitable for direct laser ablation by providing a sacrificial layer adjacent the non-conductive or metallic layer and ablating the sacrificial layer to remove both layers. Reconsideration of the pending §103 rejection is therefore respectfully requested.

3. Interview Summary

A telephonic interview was conducted on February 24, 2010 between Examiner Horning and applicants' attorney Timothy Thomas. The pending rejection of claim 12 was discussed. Applicants' attorney pointed out the differences between applicants' invention in which a sacrificial layer is ablated as a way to remove an adjacent (non-conductive or metallic) layer that cannot be removed by ablating the adjacent layer directly, and the Wojnarowski reference which teaches removing two, adjacent layers by ablating each layer directly. It is believed that the

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examiner agreed that Wojnarowski does not teach removing one layer by ablating an adjacent layer as taught by applicants.

The interview also briefly discussed whether the claims, as presented, are limited to preclude direct ablation of both layers. The examiner contended that applicant's claim limitation of "applying an amount of energy to said multiple layer device to selectively remove a portion of said intermediate, sacrificial layer, thereby causing a corresponding portion of either said metallic layer or said non-conductive layer to be removed" does not preclude removing the non-conductive layer by direct ablation. Applicants' attorney contended that the claim language "selectively remov[ing] a portion of said intermediate, sacrificial layer, thereby causing a corresponding portion of [the] . . . non-conductive layer to be removed" makes it clear that the non-conductive layer is not being removed by direct ablation. However, in the interest of timely advancing the prosecution of the case, Applicants' attorney agreed that an amendment to further clarify the limitation would be submitted.

4. Conclusion

Favorable reconsideration of the amended application is respectfully requested.

Respectfully submitted,

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Date

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